

## ABSTRACT

An optical transmission network is disclosed that classifies digital broadcast channel data according to virtual channel connection (VCC) before transmission. In the optical transmission network, an optical signal receiver converts an optical signal from an optical line terminal (OLT) into an ATM cell that is classified according to the VCC. A VCC-based ATM cell classifier detects header information and a payload part from the classified ATM cell of each VCC. PID analyzers receive a payload part of an ATM cell corresponding to one VCC from the VCC-based ATM cell classifier, extract PID of each broadcast channel from digital broadcast channel data included in the payload part, and output specific broadcast channel data in the broadcast channel data included in the payload part. A switch receives broadcast channel data output from the PID analyzers and switches the received broadcast channel data to a broadcast channel desired by each subscriber. The controller updates broadcast channel information by receiving header information of the classified ATM cell of each VCC from the VCC-based ATM cell classifier, receives the broadcast channel desired by the subscriber, and controls the PID analyzers to output the desired broadcast channel according to VCC information with the desired broadcast channel included therein so that the output broadcast channel is matched to the subscriber.